Permit Fact Sheet

This permit was modified to correct the sampling frequency for Chlorides at outfall 001. Changes associated with the modification are highlighted in in gray.

General Information

Permit Number:	WI-0060453-09-0	
Permittee Name:	CITY OF MILTON	
Address:	710 S Janesville St	
City/State/Zip:	Milton WI 53563-0188	
Discharge Location:	East Bank of the Rock River (Rock River/Milton Watershed, LR04, Lower Rock River Basin in Rock County). (Lat: 42.81093º N / Lon: 89.04431º W)	
Receiving Water:	Rock River (Rock River/Milton Watershed, LR04, Lower Rock River Basin) in Rock County	
Stream Flow ($Q_{7,10}$):	140 cfs	
Stream Classification:	Warm Water Sport Fish, non-public water supply	
Design Flow(s)	Daily Maximum	1.375 MGD
	Annual Average	0.625 MGD
Significant Industrial Loading?	Evonik	
Operator at Proper Grade?	Facility is Advanced with subclasses A1 – Suspended Growth Processes, B – Solids Separation, C – Biological Solids/Sludges, P – Total Phosphorus, D – Disinfection, L – Laboratory, SS – Sanitary Sewage Collection System. 3 operators are certified.	
Approved Pretreatment Program?	N/A	

Facility Description

The City of Milton serves a population of approximately 5677 people with one significant industry (Evonik) and no anticipated growth. The City operates an activated sludge wastewater treatment system that is designed for nitrification (ammonia removal) and biological phosphorus removal in addition to the BOD removal. Alum is added for chemical polishing. Treatment units include raw wastewater screening, extended aeration activated sludge units, final clarifiers, chlorine disinfection and dechlorination in the force main to the Rock River. Sludge is aerobically digested, thickened with a gravity belt thickener and stored in liquid sludge storage tanks before being spread on DNR approved agricultural fields.

The City of Milton discharges in a shared outfall with Consolidated Koshkonong Sanitary District Wastewater Treatment Facility. In order to comply with phosphorus limitations, Consolidated Koshkonong has initiated a facility upgrade that will include renovation and expansion of the lagoon system, replacement of the chlorine disinfection system with UV and installation of chemical phosphorus removal facilities. The City is also in the planning process of replacing their chlorine disinfection with a UV system. Expected to be completed within the next year.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/sample Contents and Treatment Description (as applicable)**
701	Not Reported	24-hr flow composite samples shall be collected after the screen building, prior to phosphorus treatment.
001	0.397 MGD (2013 – 2017 Average)	Representative effluent samples (other than fecal coliform and chlorine) shall be collected after the final clarifiers, prior to the chlorine contact tank. Fecal coliform and chlorine samples shall be collected at the Consolidated Koshkonong SD discharge, prior to discharge to the Rock River.
004	101 Metric Tons (2014 – 2017 Land App Reports)	Anaerobically digested, gravity belt thickened, liquid, Class B. Representative composite samples shall be collected from the biosolids storage tank.

1 Influent - Proposed Monitoring

Sample Point Number: 701- INFLUENT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
BOD5, Total		mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	3/Week	24-Hr Flow Prop Comp	

Changes from Previous Permit:

None.

Explanation of Limits and Monitoring Requirements

BOD_5 & Total Suspended Solids – Tracking of BOD_5 and Total Suspended Solids are required for percent removal requirements found in s. NR 210.05, Wis. Adm. Code and subsection 4.4.6 of the permit.

2 Surface Water - Proposed Monitoring and Limitations

Sample Point Number: 001- EFFLUENT to ROCK RIVER

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
BOD5, Total	Weekly Avg	45 mg/L	3/Week	24-Hr Flow Prop Comp	
BOD5, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	45 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	154 lbs/day	3/Week	Calculated	Effective January, March, May, July, August, October, December
Suspended Solids, Total	Monthly Avg	170 lbs/day	3/Week	Calculated	Effective February
Suspended Solids, Total	Monthly Avg	157 lbs/day	3/Week	Calculated	Effective April, June, September, November
Suspended Solids, Total	Weekly Avg	217 lbs/day	3/Week	Calculated	Effective January, March, May, July, August, October, December
Suspended Solids, Total	Weekly Avg	240 lbs/day	3/Week	Calculated	Effective February
Suspended Solids, Total	Weekly Avg	221 lbs/day	3/Week	Calculated	Effective April, June, September, November
pH Field	Daily Max	9.0 su	3/Week	Grab	
pH Field	Daily Min	6.0 su	3/Week	Grab	
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	60 mg/L	3/Week	24-Hr Flow Prop Comp	
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	60 mg/L	3/Week	24-Hr Flow Prop Comp	
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	3/Week	24-Hr Flow Prop Comp	Report the Ammonia effluent value on the DMR.
Nitrogen, Ammonia Variable Limit		mg/L	3/Week	24-Hr Flow Prop Comp	Report the calculated variable Ammonia limit on the DMR. See Maximum Ammonia limits table in section 2.2.1.3 of the permit.
Fecal Coliform	Geometric Mean - Wkly	656 #/100 ml	Weekly	Grab	Effective May 1 through September 30

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Fecal Coliform	Geometric Mean - Monthly	400 #/100 ml	Weekly	Grab	Effective May 1 through September 30
Chlorine, Total Residual	Daily Max	38 ug/L	3/Week	Grab	Effective May 1 through September 30
Chlorine, Total Residual	Weekly Avg	38 ug/L	3/Week	Grab	Effective May 1 through September 30
Chlorine, Total Residual	Monthly Avg	38 ug/L	3/Week	Grab	Effective May 1 through September 30
Phosphorus, Total	Monthly Avg	1.0 mg/L	3/Week	24-Hr Flow Prop Comp	Year-round
Phosphorus, Total	Monthly Avg	57.4 lbs/day	3/Week	Calculated	Effective January
Phosphorus, Total	Monthly Avg	82.4 lbs/day	3/Week	Calculated	Effective February
Phosphorus, Total	Monthly Avg	56.4 lbs/day	3/Week	Calculated	Effective March
Phosphorus, Total	Monthly Avg	35.3 lbs/day	3/Week	Calculated	Effective April
Phosphorus, Total	Monthly Avg	52.9 lbs/day	3/Week	Calculated	Effective May
Phosphorus, Total	Monthly Avg	12.3 lbs/day	3/Week	Calculated	Effective June
Phosphorus, Total	Monthly Avg	9.21 lbs/day	3/Week	Calculated	Effective July
Phosphorus, Total	Monthly Avg	2.2 lbs/day	3/Week	Calculated	Effective August
Phosphorus, Total	Monthly Avg	17.8 lbs/day	3/Week	Calculated	Effective September
Phosphorus, Total	Monthly Avg	14.7 lbs/day	3/Week	Calculated	Effective October
Phosphorus, Total	Monthly Avg	17.9 lbs/day	3/Week	Calculated	Effective November
Phosphorus, Total	Monthly Avg	33.7 lbs/day	3/Week	Calculated	Effective December
Chloride		mg/L	Monthly	24-Hr Flow Prop Comp	Jan 1, 2022 - Dec 31, 2022. Monitor Only.
Temperature		deg F	3/week	Continuous.	May 2022 monitoring only.
Acute WET		TU_a	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET Monitoring section in permit for monitoring dates & WET requirements
Chronic WET		TU_c	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET Monitoring section in permit for monitoring dates & WET requirements

Rock River Total Maximum Daily Load

A total maximum daily load (TMDL) was developed for the Rock River Basin to determine the maximum amounts of phosphorus and sediment that can be discharged to protect and improve water quality. The Rock River Basin's TMDL was approved by the Environmental Protection Agency (EPA) in September 2011. These final effluent limits were derived from and comply with the applicable water quality criterion and are consistent with the assumptions and requirements of the EPA-approved wasteload allocation (WLA) for the Rock River. The entire report can be found at: http://dnr.wi.gov/topic/TMDLs/RockRiver/Final_Rock_River_TMDL_Report_with_Tables.pdf. The proposed permit includes limitations and requirements necessary to implement the recommendations of the TMDL. For specific limits see below.

Changes from Previous Permit

The sampling frequency for Chlorides in calendar year 2022 has been updated to Monthly from 3/Week in the initial reissuance.

Weekly and Monthly average limits for Ammonia, Nitrogen of 60 mg/L have been added for the permit term. A new weekly geometric mean of 656#/100 mL for Fecal Coliform has been included. The Total Phosphorus limit has been lowered from 1.5 mg/L to 1.0 mg/L and phosphorus mass limits are effective upon reissuance. Temperature monitoring in May of the fourth year of the permit has been added to collect data for the next reissuance. Chronic WET testing has been added for this term.

Explanation of Limits and Monitoring Requirements

Please refer to the Water Quality Based Effluent Limits Memo prepared by Amy Garbe, dated June 13, 2018, for the detailed calculations and explanation.

> Note: Throughout this fact sheet all citations of administrative code for example, s. NR 102.06, Wis. Adm. Code, will be referenced as s. NR 102.06, and reflect current Wisconsin Administrative Code.

Categorical Limits

BOD_5, Total Suspended Solids (TSS), pH, and Fecal Coliform – Standard municipal wastewater requirements for BOD_5, TSS, and Fecal Coliform are included based on NR 210 'Sewage Treatment Works' requirements for discharges to limited aquatic life streams. Chapter NR 102 'Water Quality Standards for Surface Waters' also specifies requirements for pH for fish and aquatic life streams.

Regulatory changes to s. NR 205.065, became effective September 1, 2016 and require limits in this permit to be expressed as weekly average and monthly average limits whenever practicable. These changes are based on 40 CFR 122.45(d). Minor changes have been made to fecal coliform limitations from the previous permit in order to comply with this regulation.

Water Quality Based Limits and WET Requirements and Disinfection

Whole Effluent Toxicity – Whole effluent toxicity (WET) testing requirements and limits (if applicable) are determined in accordance with ss. NR 106.08 and NR 106.09 Wis. Adm. Code, as revised August 2016. (See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance and test methods at http://dnr.wi.gov/topic/wastewater/wet.html). Two Acute and two Chronic WET tests are scheduled in the following rotating quarters: April –June 2020 and July-September 2022.

Ammonia – Current acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Tables 2C and 4B of ch. NR 105, Wis. Adm. Code. Subchapter IV of ch. NR 106 establishes the procedure for calculating water quality based effluent limitations (WQBELs) for ammonia. The current daily maximum pH variable ammonia limits are retained in the proposed permit.

Regulatory changes to s. NR 205.065, Wis. Adm. Code, became effective September 1, 2016 and require limits in this permit to be expressed as weekly average and monthly average limits whenever practicable. Therefore, a weekly average and monthly average limit of 60 mg/L was added.

Chlorine – Effluent limitations for chlorine are included in the proposed permit to assure proper operation of the de-

chlorination system since chlorine is added as a disinfectant. S. NR 210.06(2)(b), states "When chlorine is used for disinfection, the daily maximum total residual chlorine concentration of the discharge may not exceed 0.10 mg/L." Since the calculated water quality-based effluent limitations for chlorine are more restrictive, the water quality-based limits are retained in the proposed permit. Due to the recent changes to the limit expression requirements in s. NR 106.07(2), a daily maximum, monthly average, and weekly average limit of 38 µg/L is also included. Due to revisions to s. NR 106.07(2), mass limits are not required. Once chlorine disinfection has been replaced with UV disinfection, chlorine monitoring will no longer be necessary.

Chloride – Acute and chronic chloride toxicity criteria for the protection of aquatic life are included in Tables 1 and 5 of ch. NR 105, Wis. Adm. Code. Subchapter VII of ch. NR 106 establishes the procedure for calculating water quality based effluent limitations (WQBELs) for chloride. Based on analysis of available data, there is no reasonable potential for the discharge to exceed any of the calculated water quality based effluent limits. Monitoring in calendar year 2022 is included and the reported data will be used for the next permit reissuance.

Thermal – Requirements for Temperature are included in NR 102 Subchapter II Water Quality Standards for Temperature and NR 106 Subchapter V Effluent Limitations for Temperature. These regulations became effective 10/1/2010. Thermal discharges must meet the Public Health criterion of 120 degrees F and the Fish & Aquatic Life criteria which are established to protect aquatic communities from lethal and sub-lethal thermal effects. Based on analysis of available data, there is no reasonable potential for the discharge to exceed any of the calculated water quality based effluent limits. May monitoring in calendar year 2022 is included and the reported data will be used for the next permit reissuance.

Phosphorus - Recent revisions to the administrative rules for phosphorus discharges took effect on December 1, 2010. Details may be found at: http://dnr.wi.gov/topic/surfacewater/phosphorus.html. Mass limits were calculated to comply with the Rock River TMDL and were derived consistent with the assumptions and requirements of the EPA-approved WLA for the Rock River. Limits for the permit were determined using the code changes and the provisions of the TMDL. For the reasons explained in the April 30, 2012 paper entitled 'Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin', WDNR has determined that it is impracticable to express the phosphorus WQBEL for the permittee as daily maximum or weekly average values. The final effluent mass limits for phosphorus are expressed as monthly averages. The facility currently treats for phosphorus and can meet the TMDL mass limits. A phosphorus concentration limit is necessary to prevent backsliding during the term of the permit. The TBL limit of 1.0 mg/L will be retained in the permit. The approved total phosphorus TMDL mass limits for this permittee are included in the following table below:

Month	Monthly Average Total P Effluent Limit (lbs/day)
Jan	57.4
Feb	82.4
March	56.4
April	35.3
May	52.9
June	12.3
July	9.21
Aug	2.20
Sept	17.8
Oct	14.7
Nov	17.9

Dec	33.7

The wastewater treatment facility able to meet their final phosphorus limits; however, the City did want some extra assurance that compliance will be maintained during the month of August. This permit authorizes the use of trading as a tool to demonstrate compliance with the phosphorus WQBELs. This permit includes terms and conditions related to the Water Quality Trading Plan (WQT-2018-0004) or approved amendments thereof. The total 'WQT TP Credits' available are 0.6 lbs/day for the month of August and designated in the approved WQT Plan. The City Wastewater Utility has exchanged wasteload allocations (WLA)with the City's Stormwater Utility as the MS4 is internally drained and therefore the WLAs are not needed for the MS4. The applicable trade ratio is 1.2:1.

Additional WQT subsections in the permit provide information on compliance determinations and re-opening of the permit.

Total Suspended Solids - Weekly average and monthly average mass limits for total suspended solids were required to comply with the Rock River TMDL and were derived consistent with the assumptions and requirements of the EPA-approved WLA for the Rock River. There are no changes proposed in current concentration limits. The treatment plant is easily meeting the mass limits (see limits below). These limits are in addition to the concentration limits for suspended solids of 30 mg/L monthly average and 45 mg/L weekly average. The approved total suspended solids TMDL limits for this permittee are included in the following table, expressed as weekly average and monthly average effluents limits, and were already effective in the previous permit**:**

Month	Monthly Ave TSS Effluent Limit (lbs/day)	Weekly Ave TSS Effluent Limit (lbs/day)
Jan	154	217
Feb	170	240
March	154	217
April	157	221
May	154	217
June	157	221
July	154	217
Aug	154	217
Sept	157	221
Oct	154	217
Nov	157	221
Dec	154	217

3 Land Application - Proposed Monitoring and Limitations

Municipal Sludge Description

Sample Point	Sludge Class (A or B)	Sludge Type (Liquid or Cake)	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed (Dry Tons/Year)
004	B	Liquid	Fecal Coliform	Injection	Land Application	110
Does sludge management demonstrate compliance? **Yes**						
Is additional sludge storage required? **No**						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? **No**						
Is a priority pollutant scan required? **No**, design flow is less than 5 MGD (0.625 MGD) Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD.						

Sample Point Number: 004- SLUDGE

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Jan. 1, 2019 – Dec. 31, 2019
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Jan. 1, 2019 – Dec. 31, 2019
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	

Changes from Previous Permit:

New timeframe for monitoring PCBs is 2019.

Explanation of Limits and Monitoring Requirements

Requirements for land application of municipal sludge are determined in accordance with ch. NR 204 Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k).

Attachments:

Substantial Compliance Determination – March 14, 2018

Map(s) – May 7, 2018

Water Quality Based Effluent Limits – June 13, 2018

Public Notice

Water Quality Trading (WQT) Plan – May 29, 2018

Water Quality Trading Plan Conditional Approval -

Proposed Expiration Date:

A permit term of five years is proposed with this reissuance with an expiration date of September 30, 2023.

Justification of Any Waivers from Permit Application Requirements

No waivers were requested in the permit application.

Prepared By:

Sean Spencer – Wastewater Specialist

Date: 10/4/2021

cc: Thomas Bauman